

IN THE CLAIMS

Please amend the claims as follows:

1. (Canceled)

2. (Currently Amended) A method to heat-treat a substrate coated with a coating solution which oxidizes at a high temperature, said method comprising the steps of:

(a) lowering an oxygen concentration of a treatment atmosphere in a heating chamber when a temperature of the substrate in the heating chamber is lower than the temperature at which the coating solution oxidizes;

(b) heat-treating the substrate in the treatment atmosphere of which the oxygen concentration has been lowered so as not to cause oxidation to the coating solution; and

(c) returning the treatment atmosphere to that with the original oxygen concentration after completing said heat treatment ~~and cooling the substrate to a temperature lower than the temperature at which the coating solution oxidizes; and~~

(d) removing the substrate from the heating chamber by a moving mechanism having a cooling unit while cooling the substrate by the cooling unit to a temperature lower than the temperature at which the coating solution oxidizes.

3. (Original) The method as set forth in claim 2,

wherein said step (c) returns the treatment atmosphere to that with the original oxygen concentration after the passage of a predetermined time from the completion of said heat treatment.

4. (Original) The method as set forth in claim 2,

wherein the coating solution is an organic coating solution.

5. (Canceled)

6. (Previously Presented) The method as set forth in claim 2,
wherein the step (c) exposes the substrate to air after the passage of a predetermined time from the completion of said heat treatment.

7. (Original) The method as set forth in claim 2,
wherein said step (c) returns the treatment atmosphere to that with the original oxygen concentration when the temperature of the substrate becomes lower than a predetermined value.

8. (Previously Presented) The method as set forth in claim 2,
wherein said step (c) exposes the substrate to air when the temperature of the substrate becomes lower than a predetermined value.

9-24. (Canceled)

25. (Currently Amended) A method to heat-treat a substrate coated with a coating solution which oxidizes at a high temperature, said method comprising the steps of:

(a) lowering an oxygen concentration of a treatment atmosphere in a heating chamber when a temperature of the substrate in the heating chamber is lower than the temperature at which the coating solution oxidizes while the substrate is being held on support pins capable of appearing and disappearing from and into a holding and heating member for supporting the substrate apart from the holding and heating member in the heating chamber;

(b) heat-treating the substrate in the treatment atmosphere of which the oxygen concentration has been lowered so as not to cause oxidation to the coating solution; and

(c) returning the treatment atmosphere to that with the original oxygen concentration

after completing said heat treatment ~~and cooling the substrate to a temperature lower than the temperature at which the coating solution oxidizes; and~~

(d) removing the substrate from the heating chamber by a moving mechanism having a cooling unit while cooling the substrate by the cooling unit to a temperature lower than the temperature at which the coating solution oxidizes.

26. (Currently Amended) A method to heat-treat a substrate coated with a coating solution which oxidizes at a high temperature, said method comprising the steps of:

(a) lowering an oxygen concentration of a treatment atmosphere in a heating chamber when a temperature of the substrate in the heating chamber is lower than the temperature at which the coating solution oxidizes;

(b) heat-treating the substrate held on a supporting and heating member having support pins capable of appearing and disappearing from and into the holding and heating member in the treatment atmosphere, in the heating chamber, of which the oxygen concentration has been lowered so as not to cause oxidation to the coating solution; ~~and~~

(c) returning the treatment atmosphere to that with the original oxygen concentration after completing said heat treatment ~~and cooling the substrate to a temperature lower than the temperature at which the coating solution oxidizes; and~~

(d) removing the substrate from the heating chamber by a moving mechanism having a cooling unit while cooling the substrate by the cooling unit to a temperature lower than the temperature at which the coating solution oxidizes.

27. (Currently Amended) A method to heat-treat a substrate coated with a coating solution which oxidizes at a temperature, said method comprising the steps of:

(a) lowering an oxygen concentration of a treatment atmosphere in a heating chamber

when a temperature of the substrate in the heating chamber is lower than the temperature at which the coating solution oxidizes;

(b) heat-treating the substrate in the treatment atmosphere, in the heating chamber, of which the oxygen concentration has been lowered so as not to cause oxidation to the coating solution; ~~and~~

(c) returning the treatment atmosphere to that with the original oxygen concentration after completing said heat treatment ~~and cooling the substrate on a cooling plate to a temperature lower than the temperature at which the coating solution oxidizes, the substrate being apart from the cooling plate by supporting pins disposed adjustably in height on the cooling plate; and~~

(d) removing the substrate from the heating chamber by a moving mechanism having a cooling unit while cooling the substrate by the cooling unit to a temperature lower than the temperature at which the coating solution oxidizes, the substrate being apart from the cooling unit by supporting pins disposed adjustably in height on the cooling unit.

28. (Previously Presented) The method as set forth in claim 2, wherein said step (a) replaces the treatment atmosphere with inert gas when the temperature is lower than the temperature at which the coating solution oxidizes.

29-32. (Cancel)

33. (Currently Amended) A method to heat-treat a substrate in a heating chamber, the substrate being coated with a coating solution which oxidizes at a high temperature, said method comprising the steps of:

heat-treating the substrate while controlling an oxygen concentration of a heat-treatment atmosphere in the heating chamber; and

on completion of the heat-treating, removing the substrate from the heating chamber by a moving mechanism having a cooling unit while cooling the substrate ~~on a~~ by the cooling unit plate provided on a carrying apparatus.

34. (Currently Amended) A method to heat-treat a substrate in a heating chamber having a cover, the substrate being coated with a coating solution which oxidizes at a high temperature, said method comprising the steps of:

setting the substrate in the heating chamber and closing the cover of the heating chamber;

lowering an oxygen concentration of a treatment atmosphere in the heating chamber while a temperature in the heating chamber is lower than the temperature at which the coating solution oxidizes;

heat-treating the substrate in the oxygen-concentration-lowered treatment atmosphere;

opening the cover when a specific time elapses from completion of the heat-treating;

and

removing the substrate from the cover-opened heating chamber by a moving mechanism having a cooling unit while cooling the substrate ~~on a~~ by the cooling unit plate provided on a carrying apparatus.

35. (Currently Amended) A method to heat-treat a substrate in a heating chamber having a cover, the substrate being coated with an organic coating solution which oxidizes at a high temperature, said method comprising the steps of:

setting the substrate in the heating chamber and closing the cover of the heating chamber;

replacing a treatment atmosphere in the heating chamber with inert gas while a

temperature in the heating chamber is lower than the temperature at which the coating solution oxidizes;

heat-treating the substrate in the treatment atmosphere with the inert gas;

opening the cover when a specific time elapses from completion of the heat-treating;

and

removing the substrate from the cover-opened heating chamber by a moving mechanism having a cooling unit while cooling the substrate ~~on a~~ by the cooling unit plate provided on a carrying apparatus.

36. (Currently Amended) A method to heat-treat a substrate in a heating chamber having a cover, the substrate being coated with an organic coating solution which oxidizes at a high temperature, said method comprising the steps of:

setting the substrate in the heating chamber and closing the cover of the heating chamber;

replacing a treatment atmosphere in the heating chamber with inert gas while a temperature in the heating chamber is lower than the temperature at which the coating solution oxidizes;

heat-treating the substrate in the treatment atmosphere with the inert gas;

opening the cover when a temperature of the substrate is lowered at least to a specific temperature; and

removing the substrate from the cover-opened heating chamber by a moving mechanism having a cooling unit while cooling the substrate ~~on a~~ by the cooling unit plate provided on a carrying apparatus.

37. (New) A method to heat-treat a substrate coated with a coating solution which

oxidizes at a high temperature, said method comprising the steps of:

(a) lowering an oxygen concentration of a treatment atmosphere for a first period when a temperature of the substrate is lower than the temperature at which the coating solution oxidizes;

(b) heat-treating the substrate for a second period longer than the first period in the treatment atmosphere of which the oxygen concentration has been lowered so as not to cause oxidation to the coating solution; and

(c) returning the treatment atmosphere to that with the original oxygen concentration for a third period shorter than the second period after completing said heat treatment and cooling the substrate to a temperature lower than the temperature at which the coating solution oxidizes.